

## ABSTRACT

The present invention relates to a device with an ultrasonic-based probe for drilling and coring. The invention uses ultrasonic and subsonic vibrations produced by a frequency compensation coupler or free mass to produce the  
5 hammering action of a partially disengaged probe, with a relatively low axial force required. The invention can also be fitted with irrigation and aspiration capabilities. The invention can furthermore be furnished with a body sensor-feedback apparatus, which provides feedback to the operator as to the optimal frequency and power use of the generator. One embodiment of the invention  
10 also has a cooling mechanism to keep the drill or coring apparatus at an optimum temperature.